TOETHD" T2E7E760

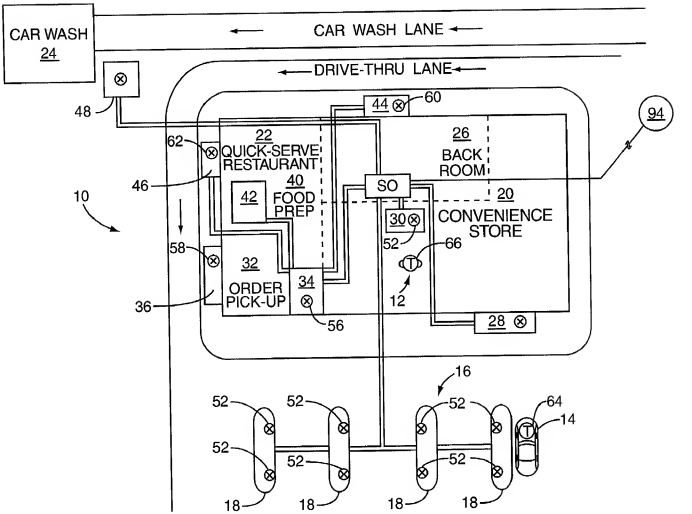

FIG. 1

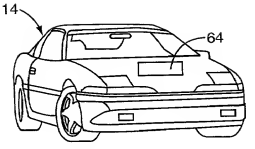

FIG. 2A

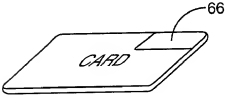

FIG. 2B

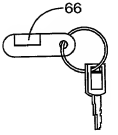

FIG. 2C

Modified: 04/14/2004 at 12:27:00 PM

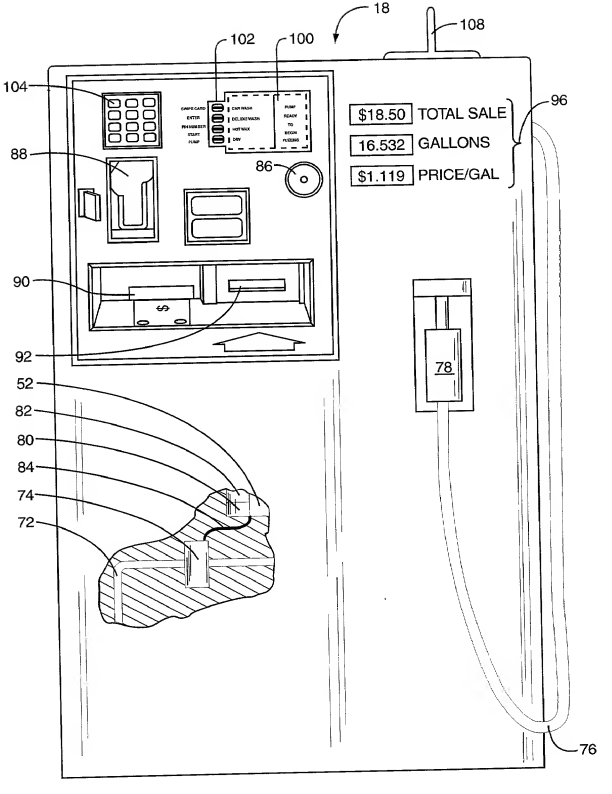
18
102
100
108
104
$18.50 TOTAL SALE
16.532 GALLONS
$1.119 PRICE/GAL
96
88
86
90
92
52
82
80
84
74
72
78
76

FIG. 3

TOETHO" T2E7E760

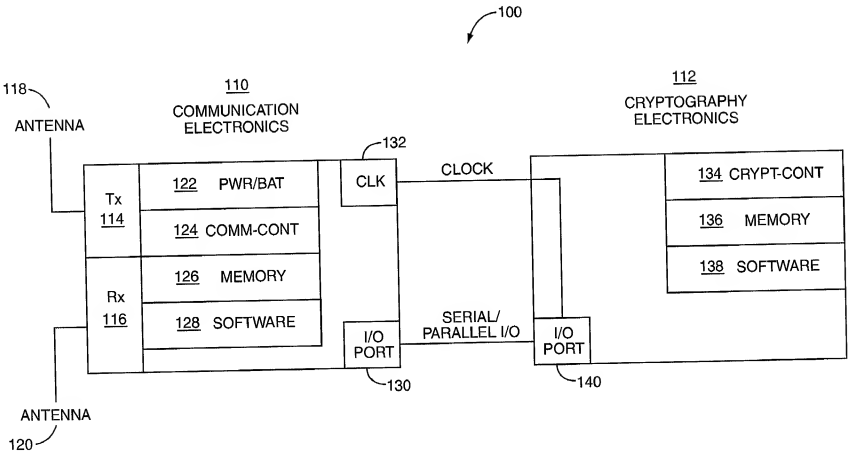

FIG. 4A

TOETHO" T2EZZ760

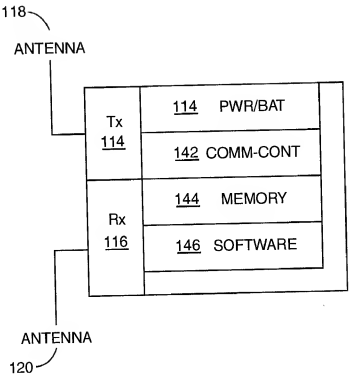

FIG. 4B

10870-122760

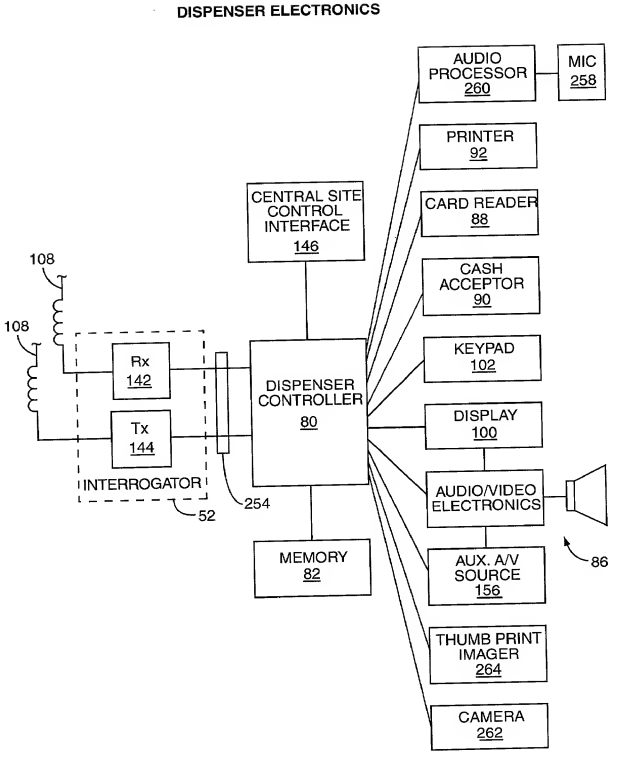

FIG. 5

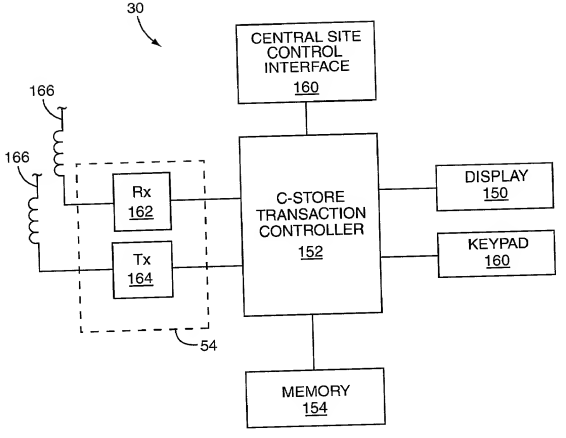
30
CENTRAL SITE CONTROL INTERFACE
160
166
166
Rx
162
Tx
164
54
C-STORE TRANSACTION CONTROLLER
152
DISPLAY
150
KEYPAD
160
MEMORY
154

FIG. 6

09737821 - 041301

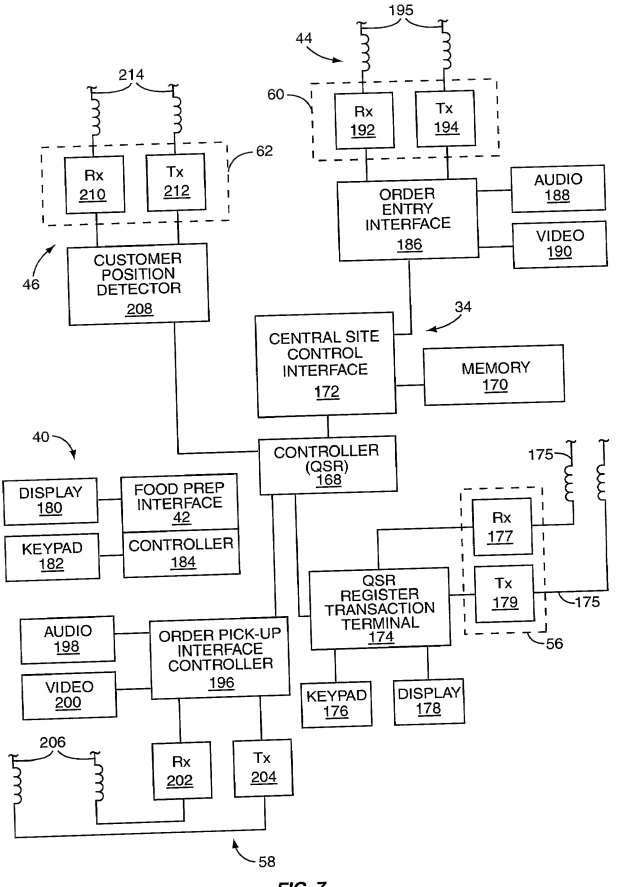

FIG. 7

09/27/2004 10:27:00

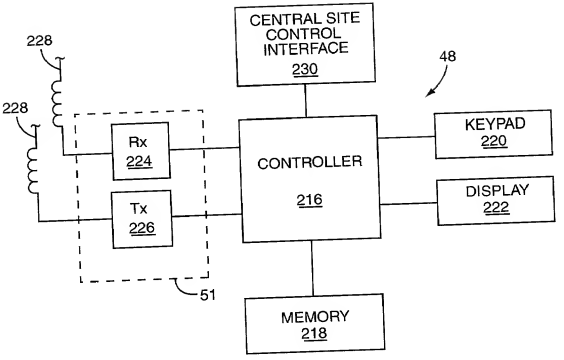

FIG. 8

09723214-041201

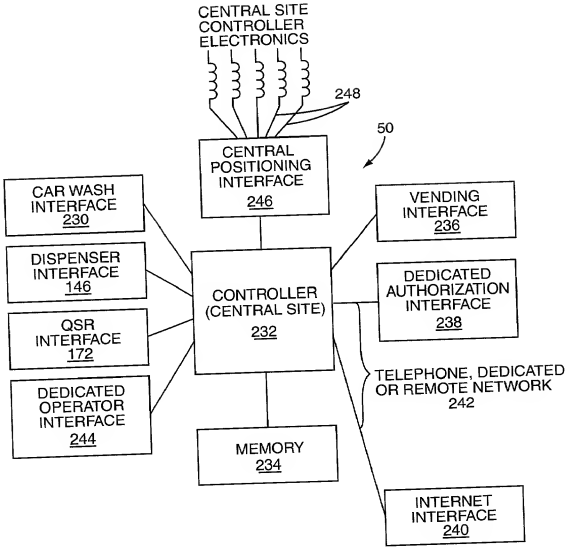

FIG. 9

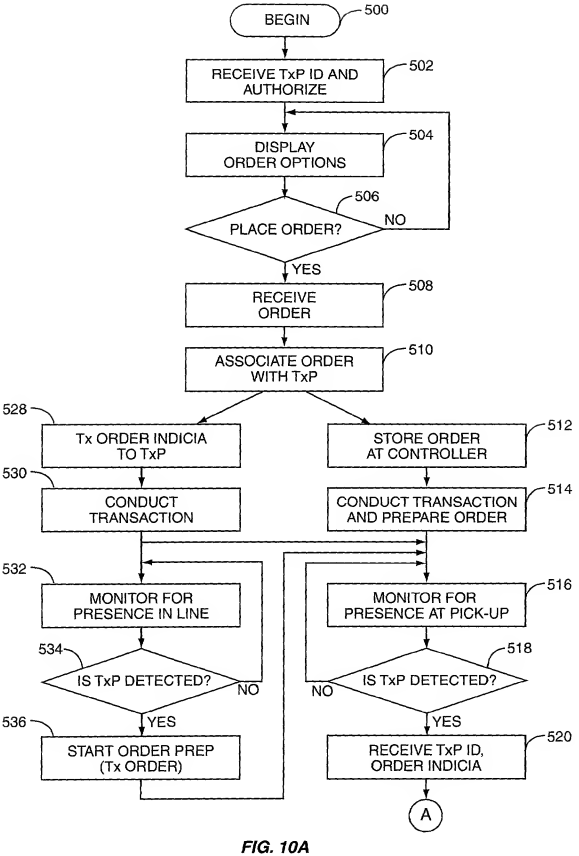
BEGIN
500
RECEIVE TxP ID AND AUTHORIZE
502
DISPLAY ORDER OPTIONS
504
PLACE ORDER?
506
NO
YES
RECEIVE ORDER
508
ASSOCIATE ORDER WITH TxP
510
528
Tx ORDER INDICIA TO TxP
530
CONDUCT TRANSACTION
532
MONITOR FOR PRESENCE IN LINE
534
IS TxP DETECTED?
NO
YES
536
START ORDER PREP (Tx ORDER)
STORE ORDER AT CONTROLLER
512
CONDUCT TRANSACTION AND PREPARE ORDER
514
MONITOR FOR PRESENCE AT PICK-UP
516
518
IS TxP DETECTED?
NO
YES
RECEIVE TxP ID, ORDER INDICIA
520
A

FIG. 10A

FDC1402-12244.6.0

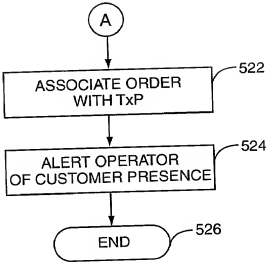

FIG. 10B

09/774,284 - 10/23/2001

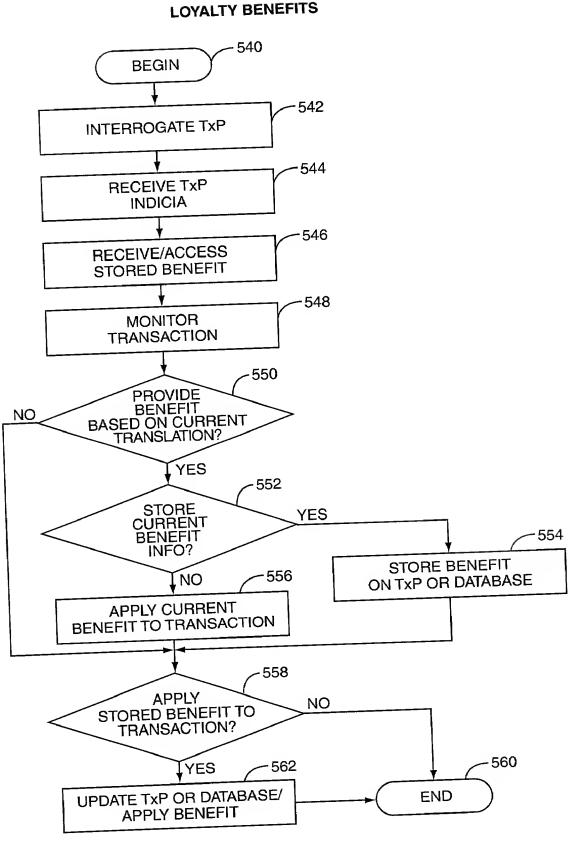

FIG. 10C

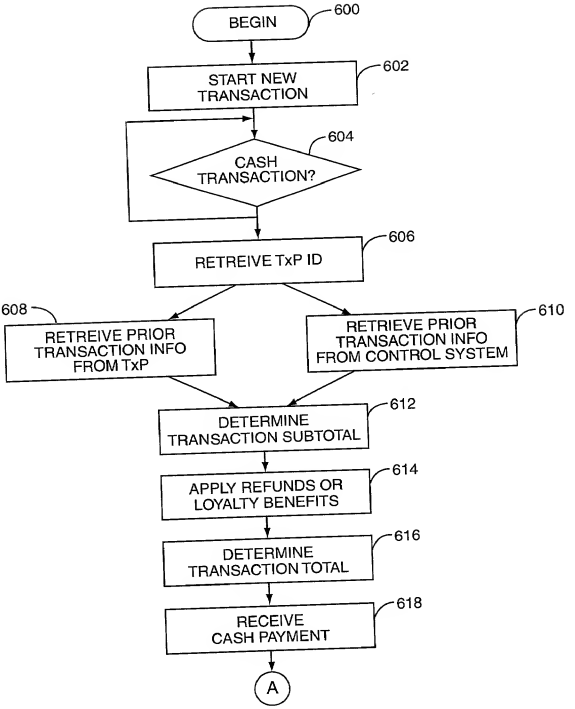
BEGIN
600
START NEW TRANSACTION
602
CASH TRANSACTION?
604
RETREIVE TxP ID
606
608
RETREIVE PRIOR TRANSACTION INFO FROM TxP
RETRIEVE PRIOR TRANSACTION INFO FROM CONTROL SYSTEM
610
DETERMINE TRANSACTION SUBTOTAL
612
APPLY REFUNDS OR LOYALTY BENEFITS
614
DETERMINE TRANSACTION TOTAL
616
RECEIVE CASH PAYMENT
618
A

FIG. 11A

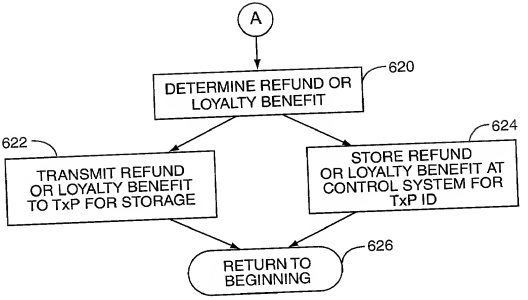
A
DETERMINE REFUND OR LOYALTY BENEFIT
620
622
TRANSMIT REFUND OR LOYALTY BENEFIT TO TxP FOR STORAGE
624
STORE REFUND OR LOYALTY BENEFIT AT CONTROL SYSTEM FOR TxP ID
626
RETURN TO BEGINNING

FIG. 11B

TOEMD-12E2E0

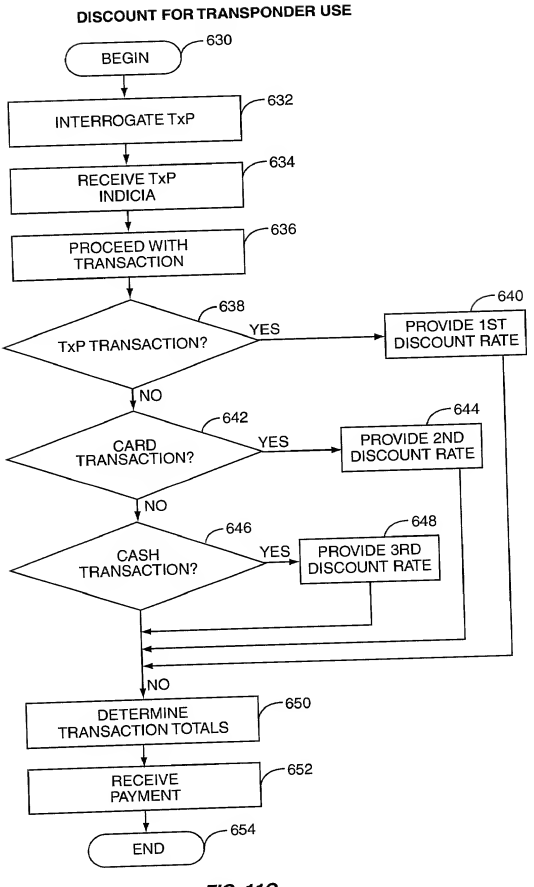

FIG. 11C

097321-0U1301

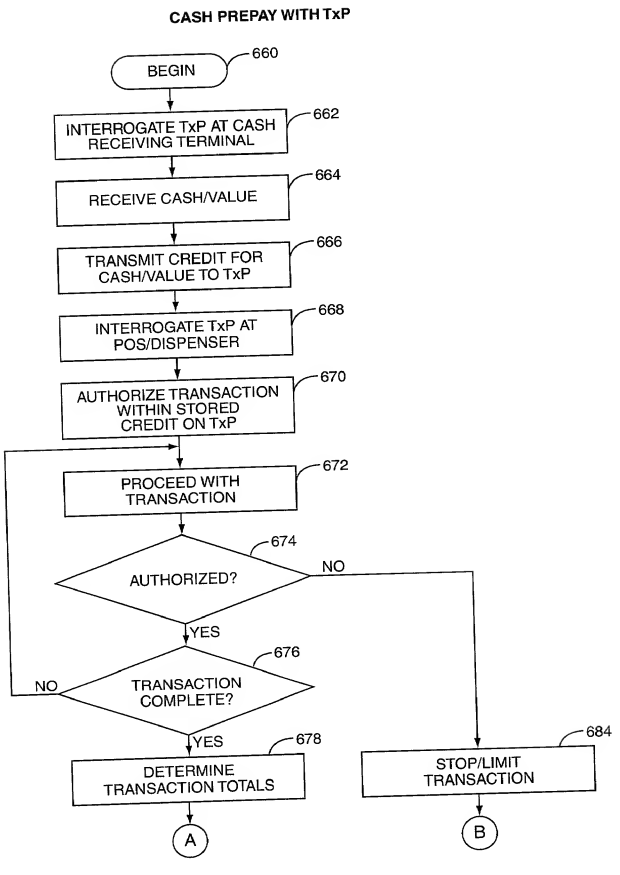

FIG. 11D

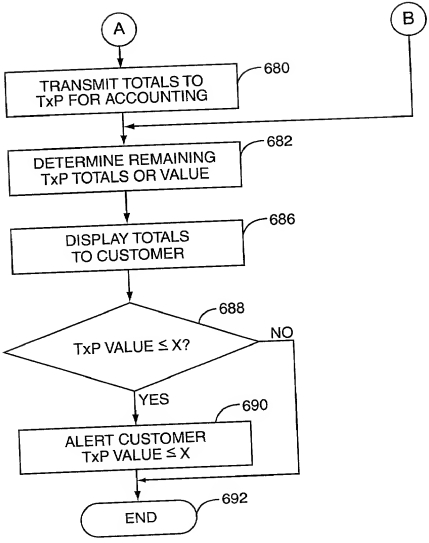
A
B
TRANSMIT TOTALS TO TxP FOR ACCOUNTING
680
DETERMINE REMAINING TxP TOTALS OR VALUE
682
DISPLAY TOTALS TO CUSTOMER
686
TxP VALUE ≤ X?
688
NO
YES
ALERT CUSTOMER TxP VALUE ≤ X
690
END
692

FIG. 11E

US 9,737,321 B2

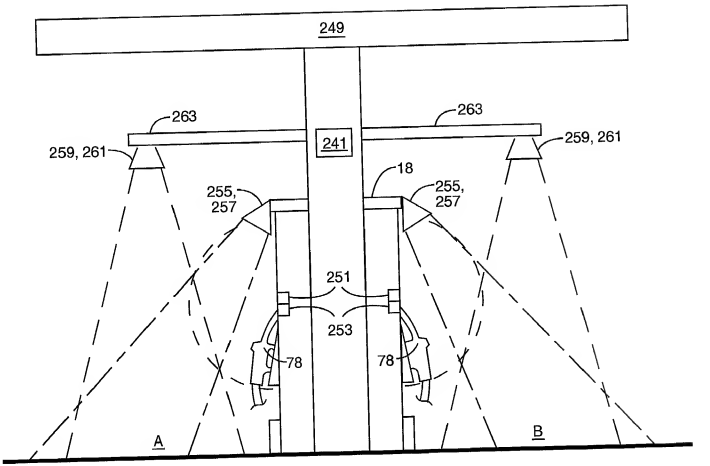

FIG. 12A

TDETHO' T2E7E760

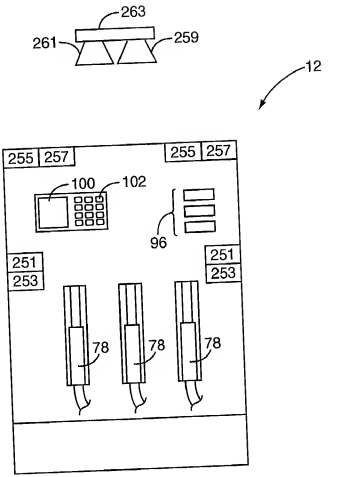

FIG. 12B

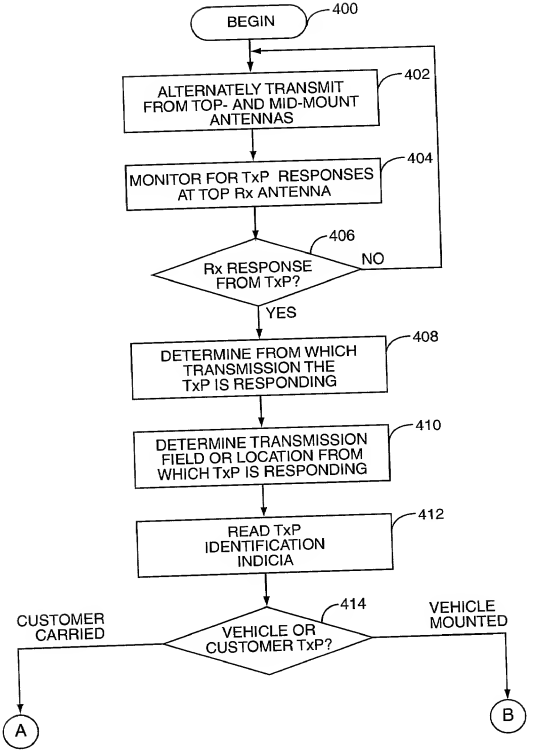
BEGIN
400
ALTERNATELY TRANSMIT FROM TOP- AND MID-MOUNT ANTENNAS
402
MONITOR FOR TxP RESPONSES AT TOP Rx ANTENNA
404
Rx RESPONSE FROM TxP?
406
NO
YES
DETERMINE FROM WHICH TRANSMISSION THE TxP IS RESPONDING
408
DETERMINE TRANSMISSION FIELD OR LOCATION FROM WHICH TxP IS RESPONDING
410
READ TxP IDENTIFICATION INDICIA
412
VEHICLE OR CUSTOMER TxP?
414
CUSTOMER CARRIED
VEHICLE MOUNTED
A
B

FIG. 12C

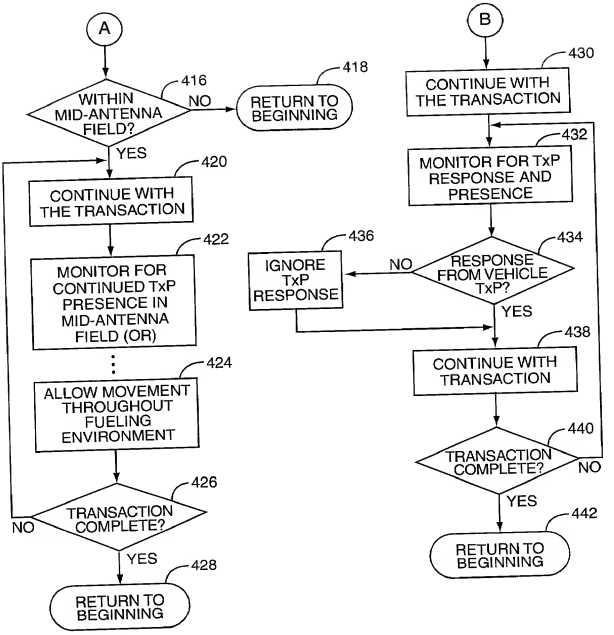
A
WITHIN MID-ANTENNA FIELD?
416
NO
RETURN TO BEGINNING
418
YES
CONTINUE WITH THE TRANSACTION
420
MONITOR FOR CONTINUED TxP PRESENCE IN MID-ANTENNA FIELD (OR)
422
ALLOW MOVEMENT THROUGHOUT FUELING ENVIRONMENT
424
TRANSACTION COMPLETE?
426
NO
YES
RETURN TO BEGINNING
428
B
CONTINUE WITH THE TRANSACTION
430
MONITOR FOR TxP RESPONSE AND PRESENCE
432
RESPONSE FROM VEHICLE TxP?
434
NO
IGNORE TxP RESPONSE
436
YES
CONTINUE WITH TRANSACTION
438
TRANSACTION COMPLETE?
440
NO
YES
RETURN TO BEGINNING
442

FIG. 12D

TOETHD" T2E7E760

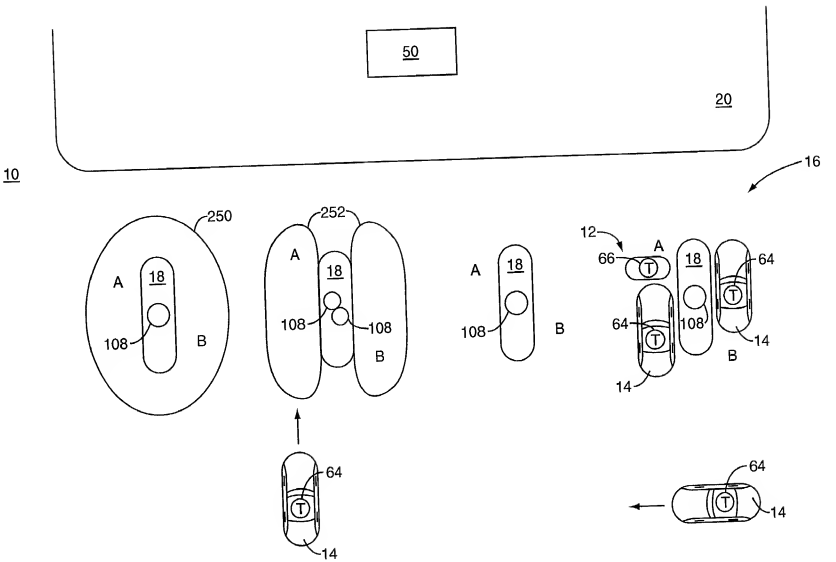

FIG. 13A

METHOD 09723261

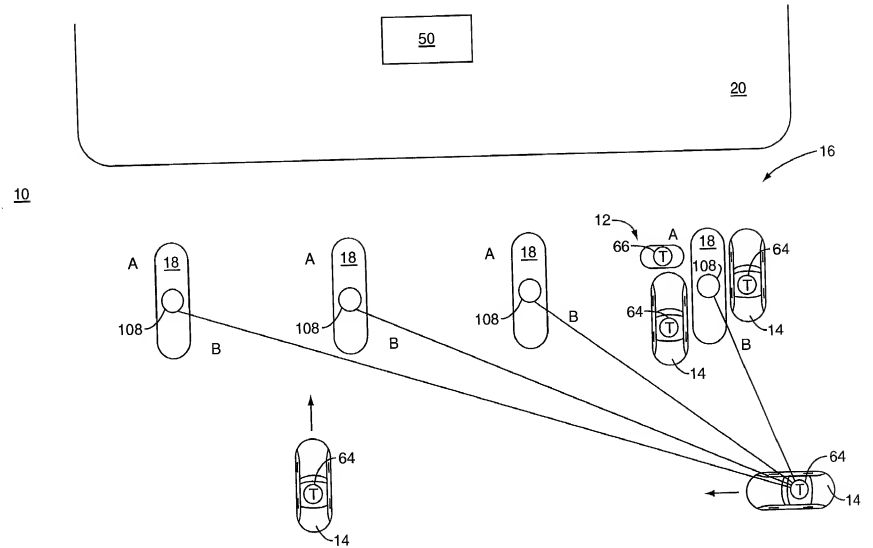

FIG. 13B

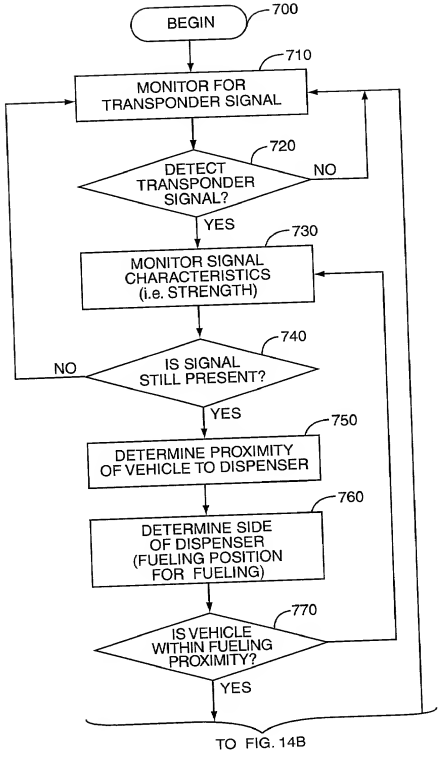
BEGIN
700
MONITOR FOR TRANSPONDER SIGNAL
710
DETECT TRANSPONDER SIGNAL?
720
NO
YES
MONITOR SIGNAL CHARACTERISTICS (i.e. STRENGTH)
730
IS SIGNAL STILL PRESENT?
740
NO
YES
DETERMINE PROXIMITY OF VEHICLE TO DISPENSER
750
DETERMINE SIDE OF DISPENSER (FUELING POSITION FOR FUELING)
760
IS VEHICLE WITHIN FUELING PROXIMITY?
770
YES
TO FIG. 14B

FIG. 14A

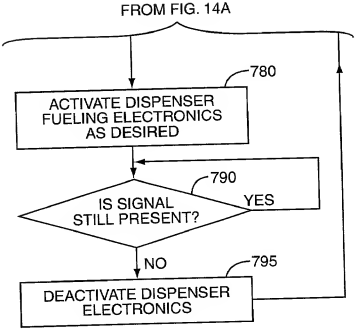
FROM FIG. 14A
780
ACTIVATE DISPENSER FUELING ELECTRONICS AS DESIRED
790
IS SIGNAL STILL PRESENT?
YES
NO
795
DEACTIVATE DISPENSER ELECTRONICS

FIG. 14B

09723141.041201

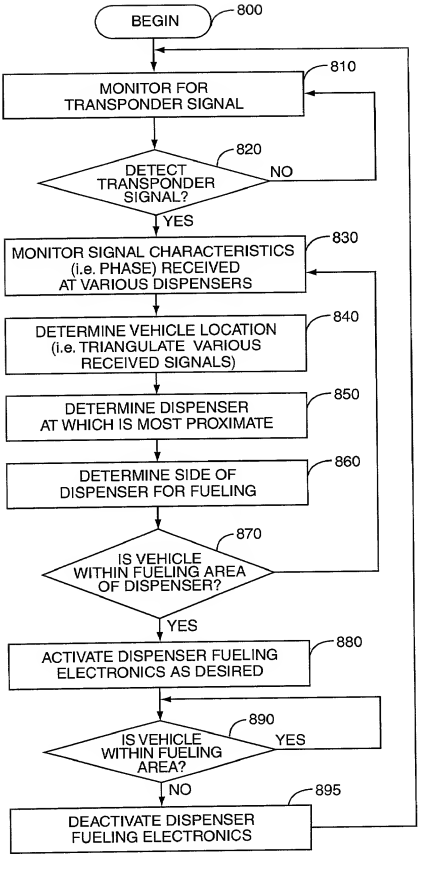

FIG. 15

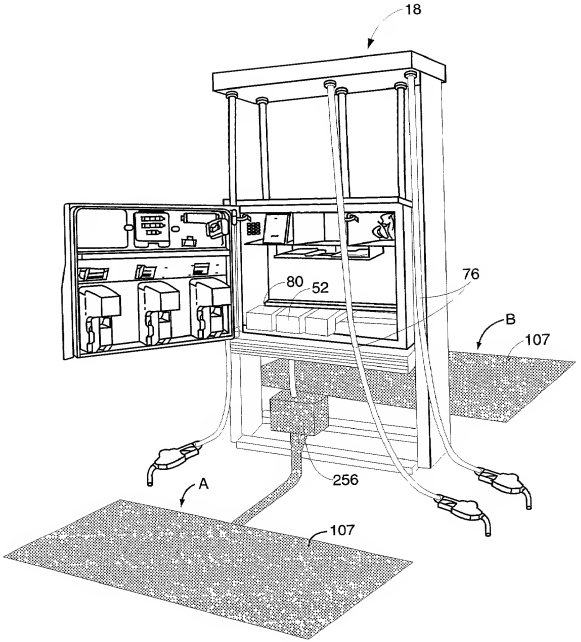

FIG. 16

09737321 .0Ч1301

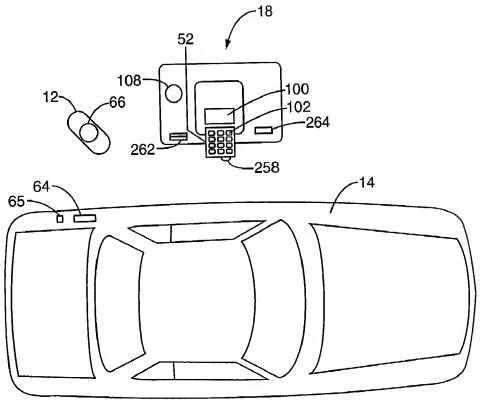

FIG. 17

DETROIT 1282760

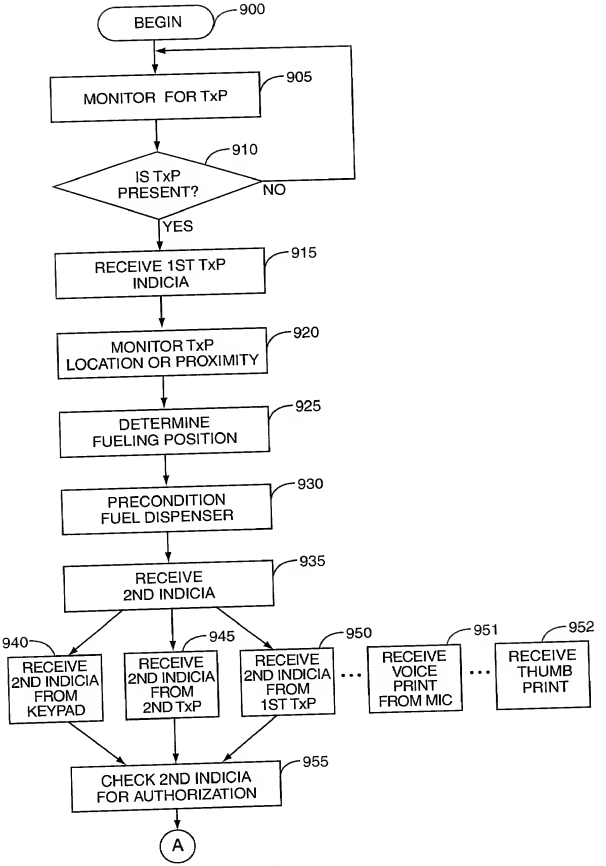

FIG. 18A

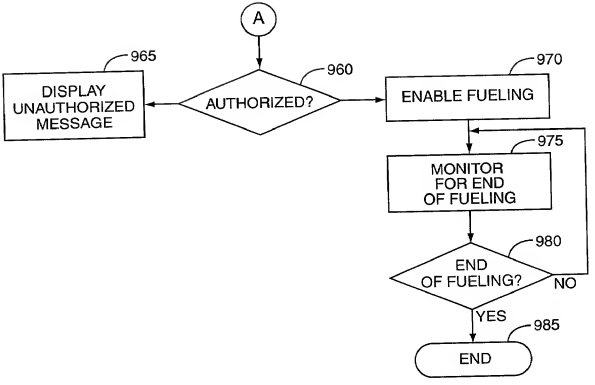
A
965
DISPLAY UNAUTHORIZED MESSAGE
960
AUTHORIZED?
970
ENABLE FUELING
975
MONITOR FOR END OF FUELING
980
END OF FUELING?
NO
YES
985
END

FIG. 18B

TOETHD*T2E7E760

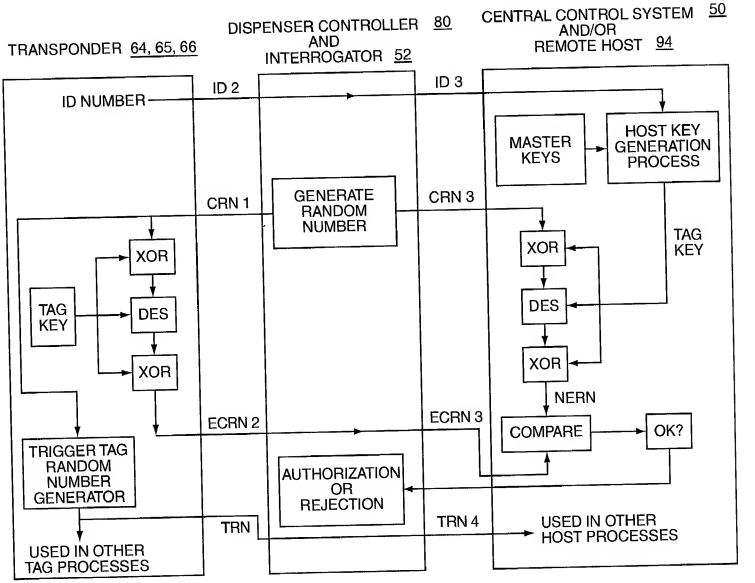

FIG. 19

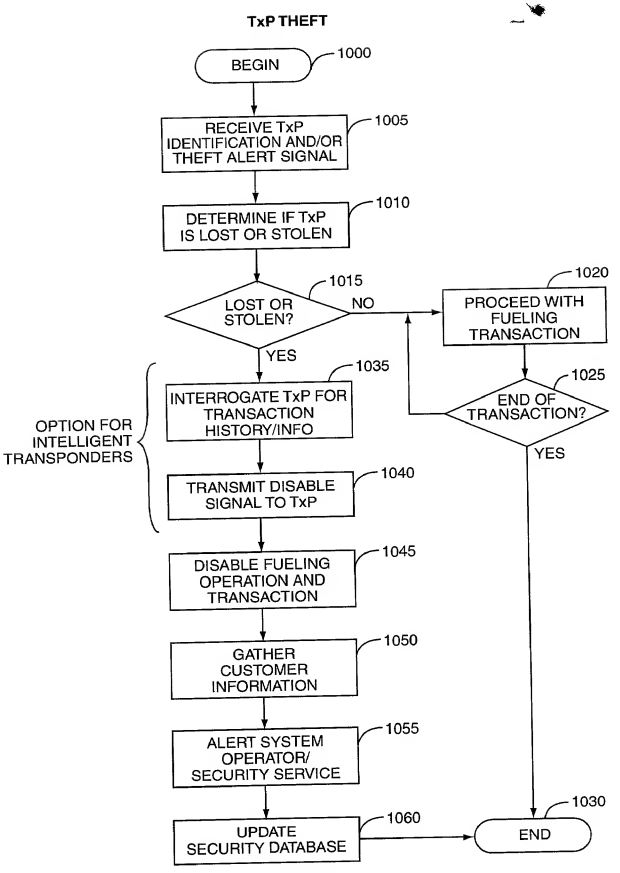
TxP THEFT
BEGIN
1000
RECEIVE TxP IDENTIFICATION AND/OR THEFT ALERT SIGNAL
1005
DETERMINE IF TxP IS LOST OR STOLEN
1010
LOST OR STOLEN?
1015
NO
PROCEED WITH FUELING TRANSACTION
1020
YES
OPTION FOR INTELLIGENT TRANSPONDERS
INTERROGATE TxP FOR TRANSACTION HISTORY/INFO
1035
END OF TRANSACTION?
1025
YES
TRANSMIT DISABLE SIGNAL TO TxP
1040
DISABLE FUELING OPERATION AND TRANSACTION
1045
GATHER CUSTOMER INFORMATION
1050
ALERT SYSTEM OPERATOR/ SECURITY SERVICE
1055
UPDATE SECURITY DATABASE
1060
END
1030

FIG. 20

7021040-1223-0760

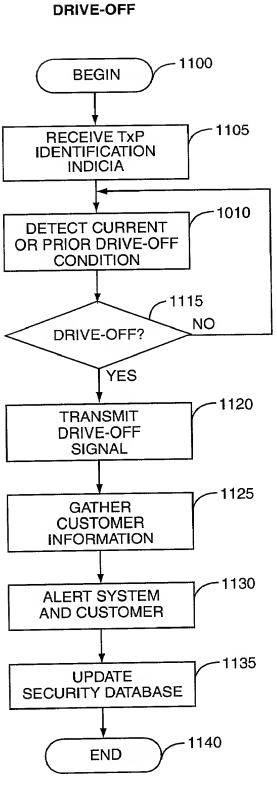

FIG. 21

TRANSACTION LIMITATIONS

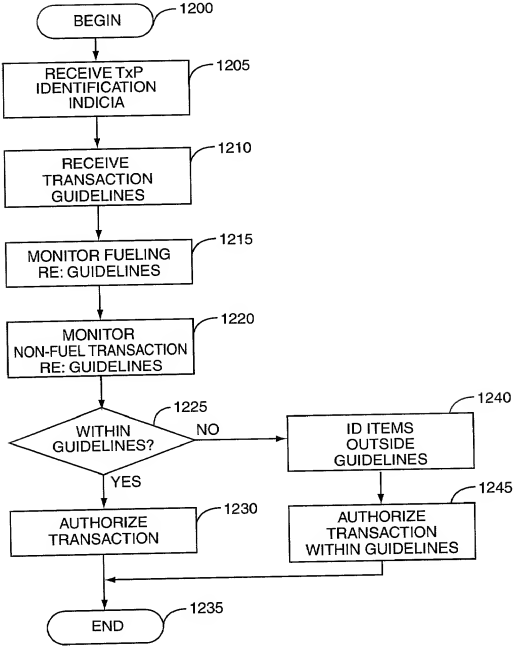

FIG. 22

09737321 .04130

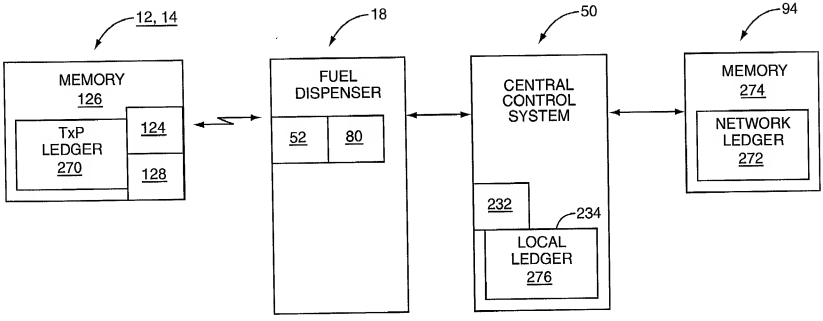

FIG. 23

Patent Application

CREATING A SHADOW LEDGER

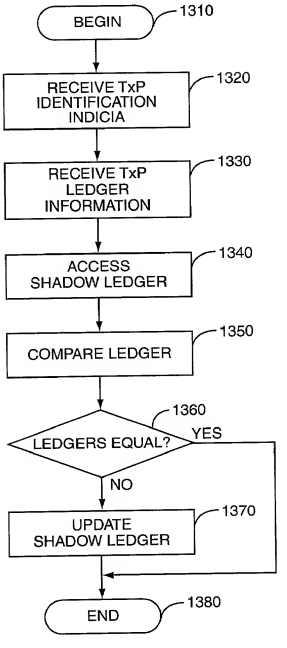

FIG. 24

TRANSACTION TRACKING

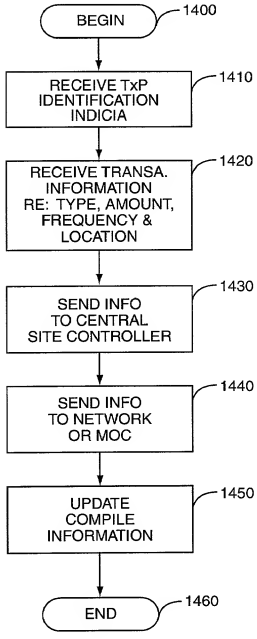

FIG. 25

CUSTOMER PREFERENCES

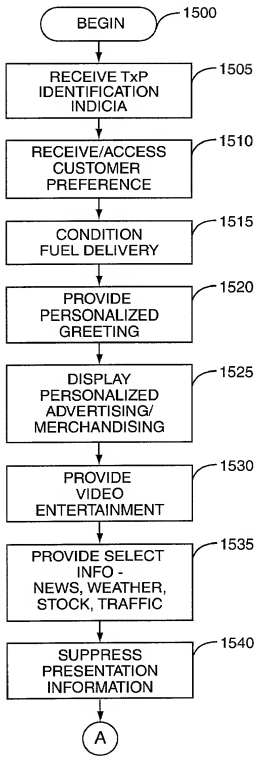

FIG. 26A

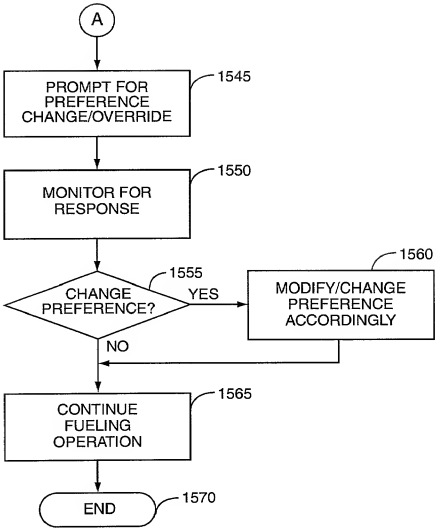
A
PROMPT FOR PREFERENCE CHANGE/OVERRIDE
1545
MONITOR FOR RESPONSE
1550
CHANGE PREFERENCE?
1555
YES
MODIFY/CHANGE PREFERENCE ACCORDINGLY
1560
NO
CONTINUE FUELING OPERATION
1565
END
1570

FIG. 26B

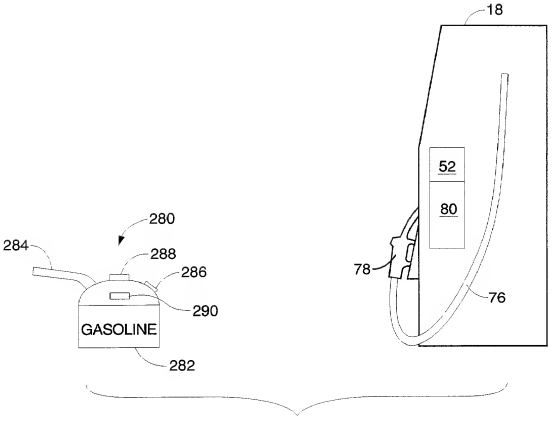

FIG. 27

DOCUMENT CLASSIFIED

PREVENTING UNAUTHORIZED CONTAINER FUELING

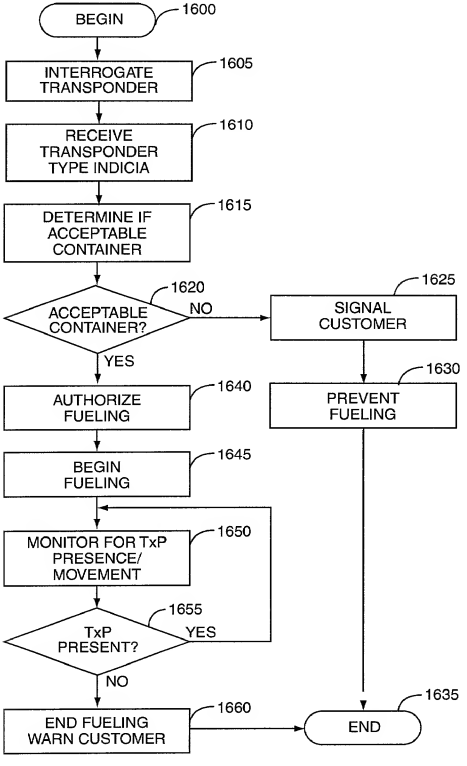

FIG. 28

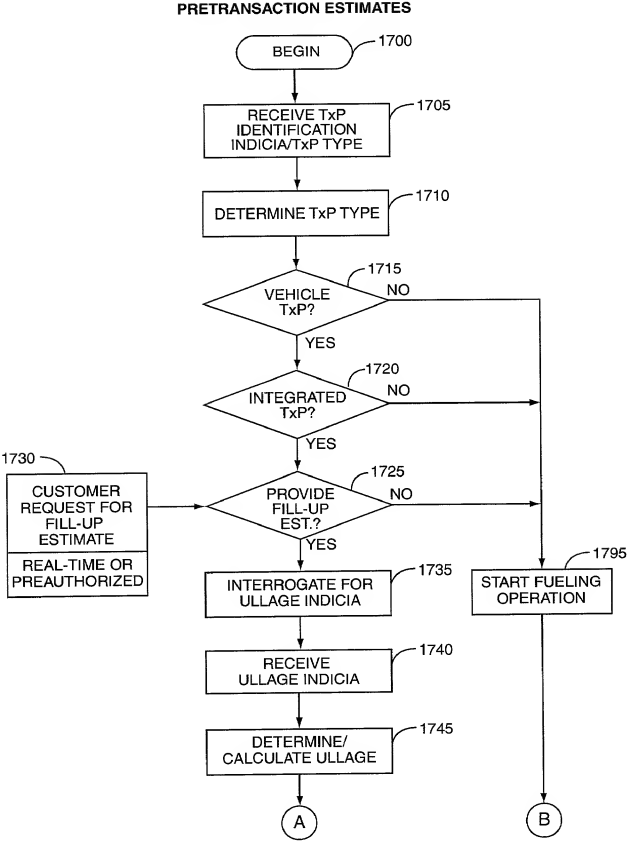
PRETRANSACTION ESTIMATES
BEGIN
1700
RECEIVE TxP IDENTIFICATION INDICIA/TxP TYPE
1705
DETERMINE TxP TYPE
1710
VEHICLE TxP?
1715
NO
YES
INTEGRATED TxP?
1720
NO
YES
1730
CUSTOMER REQUEST FOR FILL-UP ESTIMATE
REAL-TIME OR PREAUTHORIZED
PROVIDE FILL-UP EST.?
1725
NO
YES
INTERROGATE FOR ULLAGE INDICIA
1735
RECEIVE ULLAGE INDICIA
1740
DETERMINE/ CALCULATE ULLAGE
1745
START FUELING OPERATION
1795
A
B

FIG. 29A

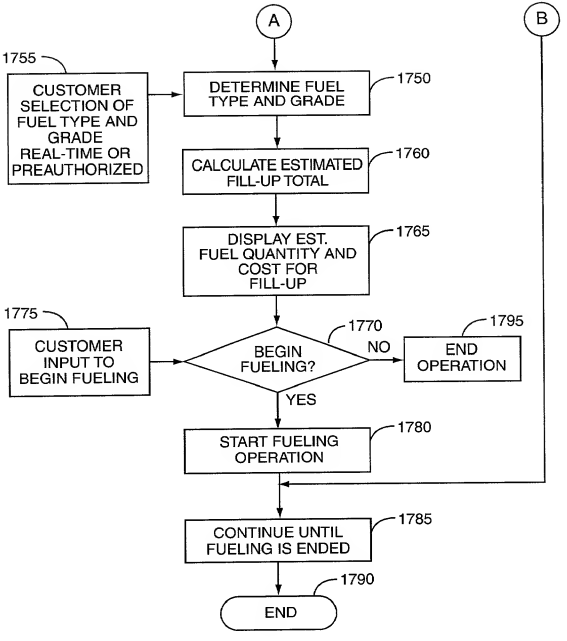
A
B
1755
CUSTOMER SELECTION OF FUEL TYPE AND GRADE REAL-TIME OR PREAUTHORIZED
DETERMINE FUEL TYPE AND GRADE
1750
CALCULATE ESTIMATED FILL-UP TOTAL
1760
DISPLAY EST. FUEL QUANTITY AND COST FOR FILL-UP
1765
1775
CUSTOMER INPUT TO BEGIN FUELING
BEGIN FUELING?
1770
NO
END OPERATION
1795
YES
START FUELING OPERATION
1780
CONTINUE UNTIL FUELING IS ENDED
1785
END
1790

FIG. 29B

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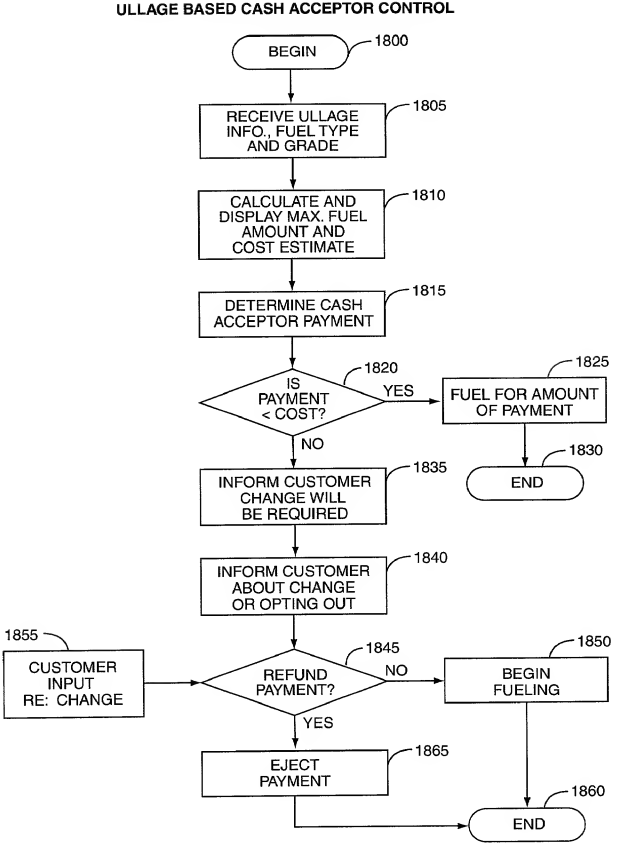

FIG. 30